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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,779	12/01/2005	Nigel Paul Schofield	MO2B161	2871

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EXAMINER	
BAYOU, AMENE SETEGNE	
ART UNIT	PAPER NUMBER
3746	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,779	SCHOFIELD, NIGEL PAUL	
	Examiner	Art Unit	
	AMENE S. BAYOU	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 6-17 are rejected under 35 U.S.C 103(a) as being unpatentable over Stones (US patent number 6863493) in view of Bachler et al. (US patent number 4023920).

3. In re claim 1, Stones '493 a vacuum pump including:

- A vacuum pumping arrangement, in figure 1, comprising a drive shaft (6), a motor (7) for driving the drive shaft (6), a molecular pumping mechanism (2) and a regenerative pumping mechanism (1), wherein the drive shaft (6) is arranged for simultaneously driving the molecular pumping mechanism (2) and the regenerative pumping mechanism (1). Stones '493, however fails to disclose the following limitation which is taught by Bachler et al. '920:
- The drive shaft (11) is supported by a lubricant free bearing (14,16,18,20,27) associated with the molecular pumping mechanism, in column 1,lines 53-57;column 3,lines 52-55;column 4,lines 9-15.

4. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the vacuum pump of Stones '493 by using non

lubricated bearing to support the drive shaft as taught by Bachler et al. '920 in order to prevent hydrocarbon diffusion and contamination to the fluid being pumped.

5. In re claim 2, Stones '493 in view of Bachler et al. '920 as applied to claim 1 disclose the claimed invention:

Bachler et al. '920 disclose:

- The lubricant free bearing (14, 16, 18, and 20) is a magnetic bearing, in column 3, lines 52-55.

6. In re claim 3, Stones '493 in view of Bachler et al. '920 as applied to claim 1 disclose the claimed invention:

Bachler et al. '920 disclose:

- The lubricant free bearing (14, 16, 18, 20) and the molecular pumping mechanism (1, 2) are substantially axially aligned, in figure 1.

7. In re claim 4, Stones '493 in view of Bachler et al. '920 as applied to claim 1 discloses the claimed invention:

Stones '493 discloses:

- The drive shaft (6) is additionally supported by a lubricated bearing (4) associated with the regenerative pumping mechanism (1), in figure 1.

8. In re claim 6, Stones '493 in view of Bachler et al. '920 as applied to claim 4 discloses the claimed invention:

Stones '493 discloses:

- The lubricated bearing (4) and the regenerative pumping mechanism (1) are substantially axially aligned, in figure 1.

9. In re claim 7, Stones '493 in view of Bachler et al. '920 as applied to claim 4 discloses the claimed invention:

Stones '493 discloses:

- The regenerative pumping mechanism (1) comprises a stator (3) comprising a plurality of circumferential pumping channels (clearly shown in figure 1) disposed about a longitudinal axis of the drive shaft (6) and a rotor (9) comprising a plurality of arrays of rotor blades extending axially into the respective circumferential pumping channels, in figure 1.

10. In re claim 8, Stones '493 in view of Bachler et al. '920 as applied to claim 7 discloses the claimed invention:

Stones '493 discloses:

- The rotor (9) of the regenerative pumping mechanism (1) is connected to the drive shaft (6) so as to be sufficiently close to the lubricated bearing (4) so that radial movement of the drive shaft at the lubricant free bearing translates substantially to axial movement of the rotor blades relative to the respective circumferential pumping channels.

11. In re claim 9, Stones '493 in view of Bachler et al. '920 as applied to claim 7 discloses the claimed invention:

Stones '493 discloses:

- The lubricated bearing (4) and the circumferential pumping channels are substantially axially aligned, in figure 1.

12. In re claim 10, Stones '493 in view of Bachler et al. '920 as applied to claim 7 discloses the claimed invention:

Stones '493 discloses:

- The lubricated bearing (4) is housed in the stator (3) of the regenerative pumping mechanism (1), in figure 1.

13. In re claim 11 and 15, Stones '493 in view of Bachler et al. '920 as applied to claim 1 discloses the claimed invention:

Stones '493 discloses:

- The molecular pumping mechanism comprises a molecular drag pumping mechanism, in column 1, lines 60-62.

14. In re claim 12 and 16, Stones '493 in view of Bachler et al. '920 as applied to claim 1 discloses the claimed invention:

Stones '493 discloses:

- The molecular pumping mechanism comprises turbo molecular pumping means, in figure 1.

Bachler et al. '920 discloses:

- The molecular pumping mechanism comprises turbo molecular pumping means, in figure 1and abstract.

15. In re claim 13 and 17, Stones '493 in view of Bachler et al. '920 as applied to claim 1 discloses the claimed invention:

Stones '493 discloses:

- A housing (3 and unnumbered parts) which houses the molecular pumping mechanism (2), the regenerative pumping mechanism (1), the drive shaft (6) and the motor (7), in figure 1.

16. In re claim 14, Stones '493 in view of Bachler et al. '920 discloses the claimed invention:

Stones '493 discloses:

- A vacuum pumping arrangement comprising a drive shaft (6) a motor (7) for driving the drive shaft (6), and a regenerative pumping mechanism (1), the drive shaft (6) being supported towards the other end thereof by a lubricated bearing (4) , the regenerative pumping mechanism (1) comprising a stator (3) comprising a plurality of circumferential pumping channels disposed about a longitudinal axis of the drive shaft (6) and a rotor (9) comprising a plurality of arrays of rotor blades extending axially into the respective circumferential pumping channels, the rotor (9) being connected to the drive shaft (6) so as to be sufficiently close to the lubricated bearing (4) so that radial movement of the drive shaft (6) at the lubricant free bearing (4) translates substantially to axial movement of the rotor blades relative to the respective circumferential pumping channels.

Bachler et al. '920 disclose:

- The drive shaft (11) being supported towards one end thereof by a lubricant free bearing (column 3, lines 52-55 and column 4, lines 9-15).See claim 1 for obviousness.

17. Claim 5 is rejected under 35 U.S.C 103(a) as being unpatentable over Stones'493 in view of Bachler et al.920 as applied to claim 1 further in view of Osterstm (US patent number 4767265.

18. In re claim 5, Stones '493 in view of Bachler et al. '920 discloses the claimed invention except the following limitation which is taught by Osterstm '265:

- The lubricated bearing is a roller bearing (12).

19. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the vacuum pump of Stones '493 and Bachler et al. '920 by choosing a roller bearing to support the shaft merely on a design choice (it is inherently clear that one of the bearings need to support a radial or thrust force generated).

Response to Arguments

20. Applicant's arguments, see page 2, filed October 24 2008, with respect to the rejection(s) of claim(s) 1-17 under 35 U.S.C 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Stones '493 and Bachler et al. '920. Bachler et al. '920 discloses a non lubricated bearing for turbo molecular pumps.

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amene S. Bayou whose telephone number is 571-270-3214. The examiner can normally be reached on Monday-Thursday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746